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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/571,044	03/03/2006	Takashi Oku	075834.00553	1699

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EXAMINER	
ZETTL, MARY E	

ART UNIT	PAPER NUMBER
2875	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/571,044	OKU ET AL.	
	Examiner	Art Unit	
	MARY ZETTL	2875	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *4/28/2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4,6,7,9,16 and 17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4,6,7,9,16 and 17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 February 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1,4, 6, 7, 9, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rika et al. (JP 08-335044) and in view of Wang et al. (US 6,752,507 B2) and further in view of Campbell et al. (US 6,354,709 B1) and Yagi et al. (US 2002/0068134 A1).

Regarding claim 1, Rika et al. teaches a light source for emitting light, and a diffuser (12) disposed between the light source (32; Figure 11) and a liquid crystal display device (paragraph 1), wherein the diffuser is comprised of a continuous body of a first resin material and diffusion elements (paragraph 21), each of the diffusion elements being comprised of a second resin material different from the first resin material (paragraph 21), and the diffusion elements are located within the continuous body of the first resin material and are surrounded by portions of the first resin material and the diffusing elements are located at a light incident side (Figure 4, note although the lower surface of the diffuser, 12, may not be the first surface that the light comes into contact with, it still has a light incident surface, which is the surface that is closest to the light source), the diffuser further including a light distribution layer (13) having a prismatic surface facing toward the liquid crystal display (paragraph 68), the light

distribution layer comprised of a second resin material layer applied directly on the diffuser (12, Figure 4), the prismatic surface being formed into a surface of the second resin material layer (Figure 4).

Rika does not disclose expressly the diffusion elements having a portion of the first resin material located at a light incident side and a portion of the first resin material located at a light emission side.

Wang et al. teaches a light source (30) and a diffuser (40) disposed between the light source and a liquid crystal display device (10; Figure 3), wherein the diffuser is comprised of a continuous body of a first resin material (42) and diffusion elements (411,412; Figure 4), each of the diffusion elements being comprised of a second resin material different from the first resin material, and the diffusion elements are located within the continuous body of the first resin material and are surrounded by portions of the first resin material (col. 3, lines 7-18), the diffusion elements having a portion of the first resin material located at a light incident side and a portion of the first resin material located at a light emission side (Figures 3 and 4), the diffuser element including diffusing elements formed in the continuous body of the first resin material at a light incident side (note that although there are other components in between 40 and the light guide, item 40 still has a light incident surface, which is the surface that is closest to the light guide, 24, and therefore meets the claim limitation of the diffuser including diffusing elements formed at a light incident side).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Rika such that the diffusion

elements having a portion of the first resin material located at a light incident side and a portion of the first resin material located at a light emission side as taught by Wang et al. for the purpose of increasing the number of refractions and thus the uniformity of output light. Rika and Wang do not disclose expressly the further body of material being applied directly on a diffuser, the further body of material being an extrusion formed adjacent to the diffuser.

Campbell et al. teaches a backlight for a display device including a light source (92) and a diffuser (24, Fig. 1; col. 2, lines 45-55) and a further body of material (18, Fig. 1) being applied directly on a diffuser, the further body of material being an extrusion formed adjacent to the diffuser (Fig. 1, col. 6, lines 50-55 and col. 8, lines 1-6).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Rika and Wang by applying the further body of material directly to the diffuser and to form the further body of material by extrusion as taught by Campbell for the purpose of providing a uniform light output while avoiding unnecessary losses in efficiency that may result if additional materials were formed between the diffuser and the further body.

Furthermore it would have been obvious to have tried manufacturing the optical structure of Rika and Wang by extrusion as taught by Campbell since this is a well known technique for mass producing components.

Rika, Wang, and Campbell do not disclose expressly the extrusion being a multi-layer extrusion comprised of a plurality of resin materials.

Yagi et al. teaches a diffuser (4, Fig. 1) and a light distribution layer comprised of a further body (1, 2, 3, Fig. 1) of resin material (par. 70-75) applied directly to the diffuser, the further body of resin material being an extrusion (par. 111) formed adjacent to the diffuser, the extrusion being a simultaneously formed multilayer extrusion (1, 2, 3, Fig. 1) comprised of a plurality of different resin materials (par. 70-75 and 90-92).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Rika, Wang, and Campbell such that the extrusion was a multi-layer extrusion comprised of a plurality of different resin materials as taught by Yagi et al.

One of ordinary skill in the art would have been motivated to have made such a modification since it is well known that increasing the interaction of two different materials causes refraction, which causes light mixing, and that increasing the amount of light mixing will increase the uniformity of output light.

Regarding claim 4, Rika et al. teaches the first resin material and the second resin material are resin materials having a refractive index ranging from 1.2 to 1.7 (paragraph 21).

Regarding claim 6, Rika et al. teaches the diffuser (12) comprising a light receiving portion (11) for receiving the light emitted from the light source formed integrally with the diffuser and disposed more toward the light source (32) than the diffuser (12).

Regarding claim 7, Rika et al. teaches the light receiving portion having a projecting shape (11 b) on a surface thereof facing to the light source. Rika et al. and Wang et al. do not disclose expressly the projecting shape being a prismatic shape. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have changed the shape of Rika et al. and Wang et al. to a prismatic shape, since it has been held that a mere change in shape of an element is generally recognized as being within the level of ordinary skill in the art when the change in shape is not significant to the function of the combination. Further, one would have been motivated to select the shape of a prism for the purpose of the in coupling efficiency. See In re Dailey, 357 F. 2d 669, 149 USPQ 47 (CCPA 1966).

Regarding claim 9, Rika et al. and Wang do not disclose expressly the light receiving portion being composed of the first resin. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have omitted layer 11 as shown in Rika et al. or to have made it out of the same material as layer 12, such that prisms were mounted directly on the first resin in the invention of Rika et al. and Wang et al., since it has been held that omission of an element and its function in a combination where the remaining elements perform the same function as before involves only routine skill in the art. In re Karlson, 136 USPQ 184.

Regarding claim 16, Rika et al. discloses the liquid crystal display apparatus comprising: a liquid crystal portion (paragraph 1); a backlight (10) for illuminating the liquid crystal display portion; wherein the backlight includes a light source for emitting light, and a diffuser (12) disposed between the light source (32; Figure 11) and a liquid crystal display device (paragraph 1), wherein the diffuser is comprised of a continuous body of a first resin material and diffusion elements (paragraph 21), each of the diffusion elements being comprised of a second resin material different from the first resin material (paragraph 21), and the diffusion elements are located within the continuous body of the first resin material and are surrounded by portions of the first resin material (Figure 4), and the diffusion elements are located within the continuous body of the first resin material and are surrounded by portions of the first resin material and the diffusing elements are located at a light incident side (Figure 4, note although the lower surface of the diffuser, 12, may not be the first surface that the light comes into contact with, it still has a light incident surface, which is the surface that is closest to the light source), the diffuser further including a light distribution layer (13) having a prismatic surface facing toward the liquid crystal display (paragraph 68), the light distribution layer comprised of a second resin material layer applied directly on the diffuser (12, Figure 4), the prismatic surface being formed into a surface of the second resin material layer (Figure 4). Rika does not disclose expressly the diffusion elements having a portion of the first resin material located at a light incident side and a portion of the first resin material located at a light emission side, the diffusion elements being completely encapsulated by the first resin.

Wang et al. teaches a light source (30) and a diffuser (40) disposed between the light source and a liquid crystal display device (10; Figure 3), wherein the diffuser is comprised of a continuous body of a first resin material (42) and diffusion elements (411,412; Figure 4), each of the diffusion elements being comprised of a second resin material different from the first resin material, and the diffusion elements are located within the continuous body of the first resin material and are surrounded by portions of the first resin material (col. 3, lines 7-18), the diffusion elements having a portion of the first resin material located at a light incident side and a portion of the first resin material located at a light emission side, the diffusion elements being completely encapsulated by the first resin (Figures 3 and 4), the diffuser element including diffusing elements formed in the continuous body of the first resin material at a light incident side (note that although there are other components in between 40 and the light guide, item 40 still has a light incident surface, which is the surface that is closest to the light guide, 24, and therefore meets the claim limitation of the diffuser including diffusing elements formed at a light incident side).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Rika such that the diffusion elements having a portion of the first resin material located at a light incident side and a portion of the first resin material located at a light emission side as taught by Wang et al. for the purpose of increasing the number of refractions and thus the uniformity of output light.

Rika and Wang do not disclose expressly the further body of material being applied directly on a diffuser, the further body of material being an extrusion formed adjacent to the diffuser. Campbell et al. teaches a backlight for a display device including a light source (92) and a diffuser (24, Fig. 1; col. 2, lines 45-55) and a further body of material (18, Fig. 1) being applied directly on a diffuser, the further body of material being an extrusion formed adjacent to the diffuser (Fig. 1, col. 6, lines 50-55 and col. 8, lines 1-6).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Rika and Wang by applying the further body of material directly to the diffuser and to form the further body of material by extrusion as taught by Campbell for the purpose of providing a uniform light output while avoiding unnecessary losses in efficiency that may result if additional materials were formed between the diffuser and the further body. Furthermore it would have been obvious to have tried manufacturing the optical structure of Rika and Wang by extrusion as taught by Campbell since this is a well known technique for mass producing components.

Rika, Wang, and Campbell do not disclose expressly the extrusion being a multi-layer extrusion comprised of a plurality of resin materials.

Yagi et al. teaches a diffuser (4, Fig. 1) and a light distribution layer comprised of a further body (1, 2, 3, Fig. 1) of resin material (par. 70-75) applied directly to the diffuser, the further body of resin material being an extrusion (par. 111) formed adjacent

to the diffuser, the extrusion being a simultaneously formed multilayer extrusion (1, 2, 3, Fig. 1) comprised of a plurality of different resin materials (par. 70-75 and 90-92).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Rika, Wang, and Campbell such that the extrusion was a multi-layer extrusion comprised of a plurality of different resin materials as taught by Yagi et al.

One of ordinary skill in the art would have been motivated to have made such a modification since it is well known that increasing the interaction of two different materials causes refraction, which causes light mixing, and that increasing the amount of light mixing will increase the uniformity of output light.

Regarding claim 17, Rika further teaches a light focusing layer (11) for focusing the light emitted from the light source (32), formed integrally with the diffusion layer (figure 4), and disposed more toward the light source (32) than the diffusion layer (12).

Response to Arguments

Applicant's arguments filed 4/28/2011have been fully considered but they are moot in view of new grounds of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary Zettl whose telephone number is 571-272-6007. The examiner can normally be reached on M-F 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diane Lee can be reached on (571) 272-2399. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MZ
/Mary Zettl/
Examiner, Art Unit 2875

/Diane I Lee/
Supervisory Patent Examiner, Art Unit 2875